SHORT COMMUNICATION

The Squash Bee Xenoglossa kansensis Cockerell (Hymenoptera: Apidae) Found in Organic Farms in Northern Florida

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In surveys of bees in organic farms and natural preserves in Alachua County, Florida, numerous Xenoglossa (Eoxenoglossa) kansensis Cockerell were caught in 2006 and 2007. This is the first record of this species in Florida, whereas presence of the similar X. (Eoxenoglossa) strenua (Cresson) has been documented previously (Mitchell, 1962; Hurd and Linsley, 1964). Genus Xenoglossa includes the large squash and gourd bees that collect pollen exclusively from Cucurbita flowers and are known to be highly effective pollinators (Hurd and Linsley, 1964, 1967; Hurd et al., 1971). Substantial amounts of squash are grown in Florida, and this newly detected bee species may contribute significantly to the production of this valuable crop.

Materials and Methods

Nearly all the X. kansensis were caught passively in colored cups filled with soapy water. Translucent plastic 3.25 oz soufflé cups (Solo, Highland Park, IL) were used that had been painted either white, fluorescent yellow or fluorescent blue as described in the Handy Bee Manual (Droege, 2008). The cups were placed about five meters apart along curved or straight lines, alternating four-cup groups of each color. The cups were hung 10 to 20 cm above the ground vegetation on custom hand-bent wires stuck into the ground. For each collection, 36 to 48 cups were placed at a location for about 30 hours. The collected bees were frozen wet and were washed and dried later as described in the Handy Bee Manual, with minor modifications.

Male terminalia were dissected and glued onto glass slides. Photographs were multiple focus digital images processed by Auto-Montage Pro 5.02 (Syncroscopy, Frederick, MD). Geographical coordinates were obtained from Google Earth.

Results and Discussion

Although very similar in appearance, females of X. kansensis are readily distinguished from X. strenua; yellow maculation covers the apical half of the clypeus of X. kansensis but only the apical margin of X. strenua (Fig. 1; drawings by Mitchell, 1962, p. 247). The males are distinguished by subtle differences in the genital armature and in the seventh sternum (Fig. 2; drawings by Mitchell, 1962, p. 248), by the presence of a polished Y-shaped area beneath the median ocellus, and by lateral carinae curved apically on sternum six (key and drawings in Hurd and Linsley, 1964, 1967).

Table 1 lists the locations where the X. kansensis were found, the dates, and the numbers of each sex caught. The cultivated areas of the organic farms ranged in size from about 10 to 60 acres, in which less than an acre up to 20 acres were devoted to squash production. The major varieties grown included the summer squashes — straightneck, zucchini, and pan (Cucurbita pepo L.), the winter squashes - acorn, spaghetti (C. pepo), buttercup (C. argyrosperma Huber, = C. mixta Pangalo), butternut and a pumpkin (C. moschata Duchesne). Winter squashes are harvested somewhat later than summer squashes. They form a hard rind, and some can be stored until early winter (basis of the “winter” classification). The blooming period of the summer and winter squashes in northern Florida extends from mid-April through June, the period when the X. kansensis were caught. The largest number caught during a single collection was at the Beville farm (May 25, 2007) which also had, by far, the largest squash production, all of which was C. pepo

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